AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (*currently amended*) A method of improvement of toughness of a heat affected zone in a welded joint of a steel plate, wherein said steel plate has a plate thickness t, characterized by subjecting a surface of a heat affected zone formed by a last pass of a multi-layer welded joint of a steel plate to impacts by an ultrasonic vibration tool using one or more pins having a diameter of ~~5~~ 10 to 30 mm with an oscillating amplitude of between 20 to 60 μm to thereby make an average of longitudinal axis of crystal grains [[at]] to a depth of at least 2 mm from the surface of the steel plate in the microstructure adjacent to a fusion line (FL) of a weld metal and a steel plate matrix in said heat affected zone formed by the last pass equivalent to the crystal grain size of the steel plate matrix before the welding at a depth of 1/4 of the thickness t from the surface of the steel plate.

2. (*currently amended*) A method of improvement of toughness of a heat affected zone in a welded joint of a steel plate, wherein said steel plate has a plate thickness t, characterized by subjecting a vicinity of a toe portion of a fillet welded joint of a steel plate to impacts by an ultrasonic vibration tool using one or more pins having a diameter of ~~5~~ 10 to 30 mm with an oscillating amplitude of between 20 to 60 μm to thereby make an average of longitudinal axis of crystal grains [[at]] to a depth of at least 2 mm from the surface of the steel plate in the microstructure adjacent to a fusion line of a weld metal and a steel plate matrix in the heat affected zone in the vicinity of the toe portion equivalent to the crystal grain size of the steel plate matrix before the welding at a depth of 1/4 of a thickness t from the surface of the steel plate.

3. (*currently amended*) A method of improvement of toughness of a heat affected zone in a welded joint of a steel plate as set forth in claim 1 or 2, characterized in that the average of longitudinal axis of crystal grains [[at]] to the depth of at least 2 mm from the surface of the steel plate is 30 μm or less.

4. (*canceled*).

5. (*previously presented*) A method of improvement of toughness of a heat affected zone in a welded joint of a steel material as set forth in claim 1 or 2, characterized by supplemental heating said steel plate before or during the impacts by the ultrasonic vibration tool.

6. (*new*) A method of improvement of toughness of a heat affected zone in a welded joint of a steel material as set forth in claim 5, characterized by supplemental heating said steel plate during the impacts by the ultrasonic vibration tool.

7. (*new*) A method of improvement of toughness of a heat affected zone in a welded joint of a steel material as set forth in claim 5, wherein the supplemental heating is by induction heating or by an electrical heating method.

8. (*new*) A method of improvement of toughness of a heat affected zone in a welded joint of a steel material as set forth in claim 6, wherein the supplemental heating is by induction heating or by an electrical heating method.